

(Japanese patent application laid open No. 63-225543)

Brief Description of the Drawings

Fig. 1 is an explanation drawing showing an embodiment of the present invention method.

Fig. 2 is a cross section diagram of an optical fiber host material made by the present invention method.

Fig. 3 is an explanation diagram of illustrating a manufacture example of a porous glass body used for the present invention.

Reference Numerals

1--- porous glass body, 2--- porous glass layer for core, 3--- porous glass layer for cladding, 4--- heating oven, 5--- gas entrance of heating oven, 6--- gas exit of heating oven, 7--- reactor core pipe of heating oven, 8--- electric heater of heating oven, 9, 26--- exhaust, 11--- optical fiber host material, 12--- glass for core, 13--- glass for cladding, 21, 22, 23, 24--- burner, 25--- exhaust pipe

Claims

“(1) A method of manufacturing an optical fiber base material by dehydrating a SiO<sub>2</sub>-based porous glass body for an optical transmission body under a heating condition and converting said porous glass body into transparent glass, the method comprising the steps of:

forming at least one of said dehydration atmosphere and said atmosphere for converting into transparent glass by a reducing atmosphere as well as forming said hydration atmosphere by compound gas including at least fluorine; and

dehydrating said porous glass body by inserting said porous glass body into the atmospheres and converting said porous glass body into transparent glass.

(2) The method of claim 1 further comprising the steps of:

dehydrating said porous glass body by inserting said porous glass body into said dehydration atmosphere; and

converting said porous glass body by inserting said porous glass body into said atmosphere for converting into transparent glass;

wherein the step of dehydrating precedes the step of converting.

(3) The method of claim 1 further comprising the step of simultaneously carrying out dehydrating said porous glass body and converting said porous glass body into transparent glass by inserting said porous glass body into an atmosphere sharing said dehydration atmosphere and said atmosphere for converting into transparent glass.

(4) The method of claims 1 to 3 wherein said dehydration atmosphere includes at least one of SiF<sub>4</sub>, CF<sub>4</sub>, SF<sub>6</sub>, CCl<sub>2</sub>F<sub>2</sub>, CCl<sub>3</sub>F, and CCl<sub>4</sub>F.

(5) The method of claims 1 to 3 wherein said reducing atmosphere includes at least CO gas, SO gas and NO gas.”

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“When a porous glass body 1 made by a means as described above is dehydrated and converted into transparent glass by a means of Fig. 1, as well as the inside of a reactor core pipe 7 remains at the dehydration atmosphere via compound gas including fluorine and said reducing atmosphere including, for example, CO, the inside of these atmosphere, i.e., the reactor core pipe 7 remains at a high temperature by an electric heater 8.

The porous glass body 1 is to be an optical fiber base material 11 by dehydrating the porous glass body 1 by inserting into the atmosphere and converting it into transparent glass.

Next, concrete examples of the present invention and a comparative example of the concrete examples are described as follows.

Concrete examples

The dehydration and conversion for transparent glass of the porous glass body 1 by the means of Fig. 1 are carried out by a next aspect.

In case of the step of dehydrating, as well as the highest temperature portion in the inside of the reactor core pipe 7 remains at 800°C by the electric heater 8, the dehydration in the reactor core pipe 7 was formed by He: 24 l/min, CO: 1ml/min and SiF<sub>4</sub>: 110l/min and the base material 1 was dehydrated by moving the porous glass body 1 at a rate of 150mm/h."